

AMENDMENT TO THE CLAIMS

CLAIMS

1. (Currently Amended) An apparatus for facilitating transdermal delivery of therapeutic substances, said apparatus comprising:

~~means for producing an electromagnetic field~~ generative device;

a control means ~~device~~ arranged to control said field producing ~~means~~ generating device to alternately produce active and substantially inactive electromagnetic field portions, each said active electromagnetic field portion including an electromagnetic field packet having a plurality of successive electromagnetic field pulses, each said substantially inactive electromagnetic field portion including no electromagnetic field pulses, and the time between successive electromagnetic field packets being greater than the time between successive electromagnetic field pulses.

2. (Currently Amended) Apparatus as claimed in claim 1, wherein the ~~means for producing an electromagnetic field~~ generating device comprises a solid state switching device.

3. (Currently Amended) Apparatus as claimed in claim 2, wherein the control ~~means~~ device is arranged to produce an energisation signal useable to control switching of the solid state switching device, each energisation signal packet including an active energisation signal portion including a plurality of energisation signal pulses and a substantially inactive energisation signal portion including no signal pulses.

4. (Original) Apparatus as claimed in claim 3, wherein at least some of the signal pulses are of generally rectangular configuration.

5. (Currently Amended) Apparatus as claimed in ~~any one of the preceding claims~~ 1, wherein the ~~means for producing an electromagnetic field~~ generating device includes a coil.

6. (Currently Amended) Apparatus as claimed in ~~any one of claims 2 to 4~~, wherein the solid state switching device comprises a transistor.

7. (Currently Amended) Apparatus as claimed in ~~any one of the preceding claims 1~~, wherein the control ~~means~~ device comprises a microcontroller.

8. (Original) Apparatus as claimed in claim 7, wherein the microcontroller is programmable by a user so that an electromagnetic signal corresponding to a predetermined therapeutic substance delivery plan is produced.

9. (Original) Apparatus as claimed in claim 8, wherein the microcontroller is programmed such that dermal permeability is increased at one or more specific times.

10. (Currently Amended) Apparatus as claimed in ~~claim 8 or claim 9~~, wherein the microcontroller is programmed such that dermal permeability is increased for a specific period of time.

11. (Currently Amended) Apparatus as claimed in ~~any one of the preceding claims 3~~, wherein the energisation signal packet repeats at a frequency of between 1Hz and 100Hz.

12. (Original) Apparatus as claimed in claim 11, wherein the energisation signal packet repeats at a frequency of between 10Hz and 50Hz.

13. (Currently Amended) Apparatus as claimed in ~~any one of the preceding claims 3~~, wherein each energisation signal packet includes between 12 and 20 energisation signal pulses.

14. (Currently Amended) Apparatus as claimed in ~~any one of the preceding claims 1~~, wherein the duration of each energisation pulse is between 1 μ s and 1s.

15. (Original) Apparatus as claimed in claim 11, wherein the duration of each energisation pulse is between 25 μ s and 100ms.

16. (Currently Amended) Apparatus as claimed in ~~any one of the preceding~~ claims 1, wherein the apparatus comprises a substantially flat member having the means ~~for producing an electromagnetic field~~ generating device and the control means device embedded therein.

17. (Currently Amended) Apparatus as claimed in ~~any one of the preceding~~ claims 1, wherein the therapeutic substance is disposed on an outwardly facing surface of the apparatus.

18. (Currently Amended) Apparatus as claimed in ~~any one of the preceding~~ claims 1, wherein the therapeutic substance is a drug, vaccine, ion, macromolecule, DNA fragment or gene.

19. (Original) A method of transdermally delivering therapeutic substances, said method comprising:

producing an electromagnetic field;

directing the electromagnetic field at a desired treatment area of a patient's skin;
and

controlling the electromagnetic field so as to alternately produce active and substantially inactive electromagnetic field portions, each said active electromagnetic field portion including an electromagnetic field packet having a plurality of successive electromagnetic field pulses, each said substantially inactive electromagnetic field portion including no electromagnetic field pulses, and the time between successive electromagnetic field packets being greater than the time between successive electromagnetic field pulses.

20. (Original) A method as claimed in claim 19, wherein the step of controlling the electromagnetic field comprises producing an energisation signal useable to control switching of a solid state switching device, each energisation signal packet including an active energisation signal portion including a plurality of energisation signal pulses and a substantially inactive energisation signal portion including no signal pulses.

21. (Original) A method as claimed in claim 20, wherein at least some of the signal pulses are of generally rectangular configuration.

22. (Currently Amended) A method as claimed in ~~any one of the claims 19 to 24~~, wherein the step of producing an electromagnetic field comprises energizing a coil.

23. (Currently Amended) A method as claimed in claim ~~20 or claim 24~~, wherein the solid state switching device comprises a transistor.

24. (Currently Amended) A method as claimed in ~~any one of claims 19 to 22~~, wherein the control means comprises a microcontroller.

25. (Original) A method as claimed in claim 24, further comprising the step of programming the microcontroller so that during use an electromagnetic signal corresponding to a predetermined therapeutic substance delivery plan is produced.

26. (Original) A method as claimed in claim 25, further comprising the step of programming the microcontroller such that dermal permeability is increased at one or more specific times.

27. (Currently Amended) A method as claimed in claim ~~25 or claim 26~~, further comprising the step of programming the microcontroller such that dermal permeability is increased for a specific period of time.

28. (Currently Amended) A method as claimed in ~~any one claims 19 to 27~~ 20, wherein the energisation signal packet repeats at a frequency of between 1Hz and 100Hz.

29. (Original) A method as claimed in claim 28, wherein the energisation signal packet repeats at a frequency of between 10Hz and 50Hz.

30. (Currently Amended) A method as claimed in ~~any one of claims 19 to 29~~ 20, wherein each energisation signal packet includes between 12 and 20 energisation signal pulses.

31. (Currently Amended) A method as claimed in ~~any one of claims 19 to 30~~
20, wherein the duration of each energisation pulse is between 1 μ s and 1s.

32. (Original) A method as claimed in claim 31, wherein the duration of each energisation pulse is between 25 μ s and 100ms.

33. (Currently Amended) A method as claimed in ~~any one of claims 19 to 32~~,
wherein the therapeutic substance is a drug, vaccine, ion, macromolecule, DNA
fragment or gene.